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A newly developed microcomputer program makes it easier to register campers at Corps of Engineers campgrounds

The Automated Use Permit System

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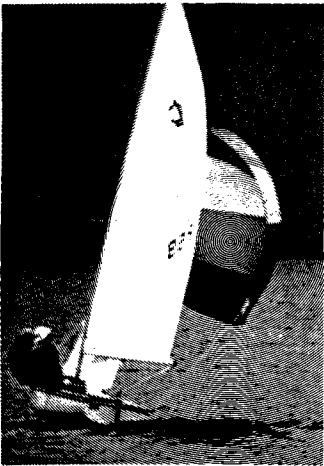
A computer program has been developed to assist in the collection and tracking of recreation use fees. The program, called the Automated Use Permit System (AUPS), was designed by the Resource Analysis Group (RAG), Environmental Laboratory, US Army Engineer Waterways Experiment Station (WES).^{*} Development of AUPS was funded primarily through the Natural Resources Research Program. A reservation component was added at the request of and funded by the Nashville District.

Cost and Time Savings

The task of recreation use fee collection

is not a small one; Corps-wide over 460 water resource projects report a significant amount of recreation use. In 1987, \$13.4 million in recreation fees were

^{*} Many people assisted in the development of AUPS. Design of the system was accomplished primarily by Mr. William Rogers, Ms. Janet Fritschen, Mr. Scott Jackson, and Mr. Larry Lawrence, RAG. Computer programming was done by Mr. Rogers and Ms. Vicki Turner, Nashville District. (When Mr. Rogers and Ms. Turner started on the program they were both working for other Corps offices. Mr. Rogers was working for the Sacramento District and Ms. Turner was working at Hords Creek Lake, Ft. Worth District.) A user's guide for AUPS was prepared by Ms. Fritschen and Mr. Todd Yann, Nashville District.



collected at these projects.* As part of a management study of the use fee collection system, the Nashville District, Resource Management Office, evaluated the monetary benefits of AUPS if used Corps-wide. It was concluded that the cost of acquiring the computer equipment and associated expenditures would be recouped in the first year, with a surplus of almost \$235,000. Thereafter, the savings would be approximately \$1 million annually. A breakdown of these costs is provided in Table 1.

Table 1
Projected Annual Cost Savings due to AUPS
(100 percent Implementation of AUPS)

<i>Description</i>	<i>Savings</i>
Recreation Use Permit (ENG Form 4457) printing, storage, mailing, and distribution	\$ 34,269
Preparation of remittance register (ENG Form 3313)	810,603
Year end reporting	92,175
Audits	4,294
Records retention, ENG Forms 4457 and 3313	31,104
Total	\$972,445

The time savings are also substantial since the park attendants can issue use permits using standard computer paper rather than the preprinted forms. Because they are accountable, the preprinted forms must be processed through many operational elements. Elimination of these steps saves as much as 2-1/2 months.

The original version of AUPS, developed in 1986, was designed to increase efficiency in issuing camping use permits. Based on recommendations made that year and in 1987, extensive modifications were made to make the system more responsive to field needs. In the process AUPS was greatly expanded and now has the capability of handling not only camping permits, but permits for picnic shelters and other facilities as well as permits for special uses. In addition, several options have been added that will be of assistance in monitoring and managing campground use on a day-to-day basis.

Specifically, AUPS is programmed to:

- Issue and renew use permits (ENG Form 4457).
- Issue and accept credit vouchers.
- Locate campers and registered visitors to campers.
- Track the type and amount of monetary transactions (cash, checks, and credit cards).
- Generate remittance registers (ENG Form 3313) and summaries of permits sold.
- Monitor campground occupancy.
- Accept campsite reservations.

Every attempt has been made to make AUPS flexible enough to accommodate differences in policies among districts and projects within a given district. These differences are accommodated in two ways. First, each component of AUPS can be used or not used, depending on the preferences of personnel at the project using it. Second, for those components being used, information is entered by the district and project offices which customizes AUPS for a particular recreation area. Some examples include site numbers and fees; maximum number of people allowed per site; and, if reservations are taken, the number of days in advance they will be accepted.

Although it can be used to issue permits from the project office, the current version of AUPS was designed for use in issuing permits at a recreation area. It was also designed with the knowledge that it would be used most often by contract park attendants. For these two factors, a menu-driven system was selected. In this type of system, the computer operator is presented with a list of options from which to choose. The main menu for AUPS is illustrated in Figure 1. If the park attendant wants to issue a use permit, he or she enters an "A" in the space at the bottom of the screen and the program will bring up the appropriate questions concerning the permit. Submenus are included where appropriate.

After the appropriate information is entered into the computer by the park attendant, a recreation use permit is printed. Use of this computer-generated permit and the Remittance Register (described below) is authorized by Headquarters, US Army Corps of Engineers. It provides all of the information on ENG Form 4457 plus some additional information (Figure 2). Among the additional pieces of information are two lines of

* US Army Engineer District, Nashville, Management Analysis Branch, Resource Management Office.

AUPS - Recreation Area Fee Program - 06/14/88

WHISPERING PINES CAMPGROUND [010]
Park Attendant on Duty: JEFFERSON

<p style="text-align: center;">Issue Permit / Voucher</p> <p><A> Use Permits Renewal Permit <C> Credit Voucher</p>	<p style="text-align: center;">Print Reports</p> <p><H> Campground Status <I> Remittance Register <J> Reprint a Permit</p>
<p style="text-align: center;">Customer Care</p> <p><D> Reservation Menu <E> Locate Camper/Visitor <F> Add a Second License <G> Void a Permit Number</p>	<p style="text-align: center;">System Update</p> <p><K> Release a Site Number <L> Reset Permit Number <M> Change Park Attendants <N> Change Messages/Paragraph</p>

Type in your Selection <A - N> - X to Exit

Figure 1. AUPS main menu

U.S. ARMY CORPS OF ENGINEERS
SOUTHEASTERN DISTRICT

Permit No. A-00041	HIDDEN HOLLOW LAKE WHISPERING PINES CAMPGROUND 06/14/88	Site No. -0011-
-----------------------	---	--------------------

Begin Date	06/14/88	Site Fees Due	+ *24.00
End Date	06/17/88	Less Golden Discount	- *12.00
No. of Nights	3	Less Credit Voucher	- **6.00
		Total Site Fees	\$ **6.00
Last Name	JONES	Plus Reservation Fee	+ *2.00
License No.1	CA/394JD92	Special Fee1EXTRA VEH.	+ *2.00
License No.2		Special Fee2	+ *0.00
Zip Code	40930	Special Fee3	+ *0.00
Party Size	*10	Less Golden Discount	- **1.00
		Total Special Fees	\$ *1.00
Golden Age No.	83495740	Total Fees Paid	\$ **9.00

000112000001100000000010 1000001 0 0.00
0 0.000 0.0015849302893028595 9.00394892011414894584559080 6.00

*** WATER SAFETY IS EVERYBODY'S RESPONSIBILITY ***

*** .T.A.K.E...P.R.I.D.E...I.N...A.M.E.R.I.C.A. ***

ENG 4457-1, MAY 87
Exception Allowed by HQUSACE 10:44:03 JEFFERSON

* The U.S. Army Corps of Engineers ... Welcomes your Visit *
*
* Please give us a hand in helping to keep a clean and
* safe natural area for other visitors. Remember, the
* animals and plants call this area their home, we all
* must be careful with our camping fires. Thank You. *

Figure 2. ENG Form 4457-1 as produced by AUPS

messages and a paragraph. These provide project personnel with a vehicle for communicating information to permit holders. They are set up by the project office and can be changed easily and quickly by authorized project personnel. Messages could, for example, be announcements about interpretation programs or whether there were low or high water levels.

Also produced by AUPS is the Remittance Register, or ENG Form 3313 (Figure 3). The total amount of cash and checks collected as well as information about each check is summarized and printed on this form. Computer generation of this form saves a considerable amount of time for both the park attendant and project personnel. An additional report, the Summary of Permits Issued, is also printed with the Remittance Register. For each permit included in the Remittance Register, the Summary lists the type of transaction (cash, check, credit card, or credit voucher), the amount of the transaction, and the park attendant who conducted the transaction. This form is provided as an additional measure of security and accountability. Figure 4 is an example of a Summary of Permits Issued form.

Three additional reports are also available for the park attendant or ranger to use. The Daily Summary of Permits Issued is very similar to the Summary of Permits Issued except that it contains the following additional information: the time of day each permit was issued, the number of permits that were voided, and the total amount and value

Figure 3. Remittance Register, ENG Form 3313,
as produced by AUPS

U.S. ARMY CORPS OF ENGINEERS
SOUTHEASTERN DISTRICT (A9)
HIDDEN HOLLOW LAKE (12345)
WHISPERING PINES CAMPGROUND (010)

RECREATION USER FEE
REMITTANCE REGISTER

DATE PREPARED: 06/15/88 CONTROL NO: _____

TOTAL COLLECTION \$*510.50

ACCOUNTING CITATION: ASD 395 UDI 94 EI 399

Total Cash Collection *494.50

SUMMARY OF CHECKS:

VISITOR NAME/ADDRESS	PERMIT NO.	CHECK NO.	AMOUNT
ROBERT CLANCY 3451 EVERGREEN LOWLAND, GA 12344	10001	1031	*16.00

Total Check Collection ***16.00

PREPARED BY: _____ ACCEPTED BY: _____

ENG 3313 ANDREWS

Exception allowed by HOUSACE May 87

U.S. ARMY CORPS OF ENGINEERS
SOUTHEASTERN DISTRICT (A9)
HIDDEN HOLLOW LAKE (12345)
WHISPERING PINES CAMPGROUND (010)

RECREATION USER FEE
SUMMARY OF PERMITS ISSUED

DATE PREPARED: 06/15/88 CONTROL NO: _____

TOTAL COLLECTION \$*544.50

ACCOUNTING CITATION: ASD 395 UDI 94 EI 399

<<< Total Number of Voided Permits: 1 >>>

< CA = CASH // CK = CHECK // CD = CARD // CV = CREDIT VOUCHER >

TYPE	PERMIT	AMOUNT	ATTENDANT	TYPE	PERMIT	AMOUNT	ATTENDANT
CD	00001	10.00	JEFFERSON	CA	00002	2.00	JEFFERSON
CA	00003	300.00	JEFFERSON	**	00004	VOID	JEFFERSON
CA	00005	12.00	JEFFERSON	CA	00006	6.00	JEFFERSON
CA	00007	40.00	JEFFERSON	CA	00008	8.00	JEFFERSON
CA	00009	2.00	JEFFERSON	CA	00010	75.00	JEFFERSON
CA	00011	24.00	JEFFERSON	CA	00012	25.50	BURROWS
CK	10001	16.00	BURROWS	CD	10002	24.00	ANDREWS
CV	10003	ZERO	ANDREWS				

Total Cash Collection **494.50

Total Check Collection ***16.00

Total Credit Card Collection ***34.00

PREPARED BY: _____ ACCEPTED BY: _____

ENG 3313 ANDREWS

Exception allowed by HOUSACE May 87

Figure 4. Summary of Permits Issued

of credit vouchers accepted and issued. The Campground Status Report lists all of the occupied sites along with the permit holder's last name and vehicle license number, the permit number, the beginning and ending dates for the permit, and the number of people in the party. The Reservation Report includes, for each outstanding reservation, the camper's name, address, and telephone number; the site number requested; the reservation beginning and ending dates; and whether or not the camper will be arriving late.

System Requirements

Hardware

AUPS does not require a highly specialized computer system, though there are some minimum requirements. These requirements are listed in Table 2 in two categories. The absolute minimum requirements, as given in Table 2, are not recommended because it takes significantly longer to issue permits, print reports, etc., and time is a factor to be considered when campers are waiting in line to be registered. If a computer system is being purchased or upgraded for use with AUPS, it should meet the recommended minimum requirements (most new machines will meet these requirements easily). The battery backup power source was added as a requirement based on field testing of AUPS. The power at most of the gatehouses proved to be prone to interruptions, causing problems with the collection and storage of the data. While this was compensated for to a certain extent in revisions of AUPS, a power outage or spike could still damage the computer equipment or, at the least, cause the permit being worked on to be lost.

Software

AUPS was written in dBASE III Plus and then compiled so that it can be run without the dBASE software. AUPS is actually composed of three different programs, one of each to be run at the district, the project, and the recreation area. The district office runs the first program to customize the system for each project in the district. The second program is used by the project office to customize the system for each recreation area. The final program is used by the park attendant to issue the use permits and produce reports.

An extensive user's manual was developed for use with AUPS. It contains step-by-step instructions for all three programs (a separate version for the park attendants contains only the instructions for the program they will be using). In addition, illustrations are provided to show readers how the computer screen will appear at various stages in the program. Copies of all the reports produced by the system are also included.

Security and Accountability

The separate programs for the district and project levels were designed not only to allow customizing AUPS, but to maximize security and accountability considerations. These programs allow the district and project to establish the passwords that are required to access AUPS at both the project and recreation area level and to make the system reflect district policies concerning credit vouchers and reservations. The passwords limit access to the system to authorized personnel as well as provide a level of accountability. When permits are issued, renewed, or voided, the name of the park

Table 2
System Requirements for AUPS

<i>Absolute Minimum</i>	<i>Recommended Minimum</i>
8-bit, 8086 microprocessor, operating at 4 plus MHz clock speed	16-bit, 80286 microprocessor, operating at 8 to 12 MHz clock speed
384-kilobyte random access memory (RAM)	512-kilobyte RAM
two floppy disk drives	20-megabyte hard disk drive and a floppy disk drive
monochrome monitor	monochrome monitor (color monitor preferred)
reverse-feed, 80-column impact printer	reverse-feed, 80-column impact printer
battery backup power source	battery backup power source

attendant who performed that action is stored with the permit data. This information can then be used by the project personnel to evaluate their park attendants if the need arises.

A number of other security measures have been built into AUPS to decrease the number of unintentional errors in data entry and computation and to reduce the potential for abuse of the system. First, the computer is programmed to check for errors when the permit information is entered by the park attendant. Second, calculations of the total amount of fees due for each permit and the amount of money collected in the form of cash, checks, and credit cards are made by the computer, eliminating the possibility of errors being made by the park attendant. Third, all three AUPS programs are compiled. This not only allows them to be operated without the dBASE software, but prohibits users from being able to read and change the programs themselves. Finally, the data files are encrypted. The result of encryption is similar to compilation; the data in encrypted files cannot be read or changed.

Current Application of AUPS

AUPS is still in a test phase for the 1988 recreation fee season. Seventeen projects in ten districts are authorized to use AUPS (Table 3).

The comments of users at these test sites have been positive. Few of the contract park attendants had previous experience with computers and few had experience with typewriters. This made many of them apprehensive at first. After learning the system, however, most said they would not want to return to the paper and pencil method. While some park attendants have cited problems with specific parts of AUPS, overall there has been a feeling that the system has made the entire process of issuing and accounting for recreation use permits easier and faster.

Integration of the Campground Receipt Study Data Requirements

Campers at Corps recreation areas have been the subject of another Natural Resources Research Program study conducted by the Resource Analysis Group. The Campground Receipt Study (CRS) is an ongoing study designed to collect descriptive data on campers which can be used for management and planning purposes. The kinds of data collected include the type of vehicles, camping equipment, and recreational equipment used by the camper, whether the camper has visited the project previously, whether the project is the primary destination of the camper's trip, and the camper's zip code. The standard recreation use permit was

Table 3
1988 Test Sites for AUPS

<i>Division</i>	<i>District</i>	<i>Project</i>
Lower Mississippi Valley	St. Louis Vicksburg	Lake Shelbyville* Lake Ouachita*
North Central	Rock Island St. Paul	Mississippi River Pool 16* Pine River Lake
Ohio River	Louisville Nashville	Nolin River Lake* Lake Barkley* Center Hill Lake Cheatham Lake Cordell Hull Lake Lake Cumberland Dale Hollow Lake Old Hickory Lake J. Percy Priest Lake
South Atlantic	Mobile Savannah	West Point Lake* Hartwell Lake*
Southwestern	Fort Worth Little Rock	Hords Creek Lake Greers Ferry Lake*

* These projects are also participating in the Campground Receipt Study.

adapted to accommodate this information, producing a new form, ENG Form 4457-1. The data have been collected at a sample of sites nationwide since 1980.

To streamline the collection of the CRS data, the appropriate questions were included in AUPS. For those projects that are a test site for both the CRS and AUPS, the questions will appear when the permit is being issued. The incorporation of the CRS questions into AUPS has made possible additional cost and time savings. It has eliminated both the need to hand enter data from completed copies of ENG Form 4457-1 into a computer-usable format and the need for data editing prior to analysis. In addition, the data are available for project and district personnel to conduct their own analyses. Normally, the keypunched data are sent to WES for analysis. A report summarizing the data is distributed about a year after the end of the recreation season. However, since AUPS produces dBASE data files, anyone who is familiar with dBASE can access the data to produce the desired reports. District and project personnel can obtain information in a more timely manner and can run analyses that are not usually conducted by the RAG.

Direct Deposit of Funds

The Nashville District management study referred to earlier addressed not only the automation of permit issuance and reporting but the control of funds collected via these permits. The recommendation of the study was to allow park attendants to submit the funds directly to the Fed-

eral Reserve, eliminating money handling by project personnel and Finance and Accounting Centers. The District was authorized to test this approach beginning April 1988. The change has resulted in a 10- to 12-day reduction in float time for the funds. The District estimated that if used Corps-wide, direct deposit would result in more than \$150,000 in interest and savings due to the decrease in administrative handling.

Summary

The Automated Use Permit System was designed by WES to provide assistance to the field in issuing and tracking recreation use permits. Based on user comments and the management study conducted by the Nashville District, it appears to be effective in accomplishing this task. The benefits of the system include:

- Increased accuracy of information.
- Instant access to the data at the project level (both the AUPS and the CRS data).
- Improved security of funds.
- Reduced paperwork.
- Streamlined reporting.
- Elimination of unnecessary accountability of blank recreation use permits.
- Reduced float time of funds.

The goal is Corps-wide application of the Automated Use Permit System in 1990.

The Automated Use Permit System, or AUPS, is a computer program developed primarily under the Natural Resources Research Program to assist in the collection and tracking of recreation use fees. Annual savings, after computer costs have been recouped in the first year of use, are estimated at \$1 million. This article describes the development and use of AUPS.



NATURAL RESOURCES RESEARCH PROGRAM

This bulletin is published in accordance with AR 310-2. It has been prepared and distributed as one of the information dissemination functions of the Environmental Laboratory of the Waterways Experiment Station. It is primarily intended to be a forum whereby information pertaining to and resulting from the Corps of Engineers' nationwide Natural Resources Research Program can be rapidly and widely disseminated to OCE and Division, District, and project offices as well as to other Federal agencies concerned with outdoor recreation. Local reproduction is authorized to satisfy additional requirements. Contributions of notes, news, reviews, or any other types of information are solicited from all sources and will be considered for publication so long as they are relevant to the theme of the Natural Resources Research Program, i.e., to improve the effectiveness and efficiency of the Corps in managing the natural resources while providing recreation opportunities at its water resources development projects. This bulletin will be issued on an irregular basis as dictated by the quantity and importance of information to be disseminated. The contents of this bulletin are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products. Communications are welcomed and should be addressed to the Environmental Laboratory, ATTN: J. L. Decell, U.S. Army Engineer Waterways Experiment Station, (CEWES-EP-L), PO Box 631, Vicksburg, MS 39181-0631, or call AC (601) 634-3494.

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